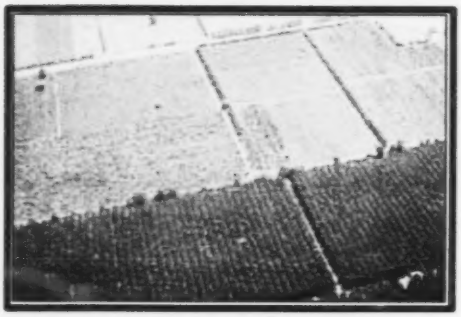
Critical Review of Historical and Current Tree Planting Programs On Private Lands in Ontario



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Ontario Ministry of Natural Resources

Critical Review of Historical and Current Tree Planting Programs On Private Lands in Ontario

Report done in partial completion of Project CC-109, "Policy and program options to maximize the contributions and benefits of afforestation in the mitigation of Greenhouse Gas Emissions". The Ontario Ministry of Natural. Resources is investigating the overall role of forests and tree planting in support of Ontario's Climate Change initiative. For more information on the afforestation component, contact Eric Boysen, Policy Advisor, Private Land Forestry at 705-755-5999.

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Critical Review of Historical and Current Tree Planting Programs On Private Lands in Ontario

1. Introduction

Ontario has a rich legacy of tree planting on private lands dating back to the late 1800's. The millions of hectares of plantations that are so prominent on the southern and central Ontario landscape were established through the visionary efforts of individual landowners and also through various provincial and other tree planting programs. These plantations now provide an array of environmental and societal benefits including clean air and water, flood and erosion control, provision of wood products and wildlife habitat, and recreational areas close to major population centres.

Afforestation programs including Agreement Forests, Woodlands Improvement Agreements, and tree planting programs operated by many of Ontario's Conservation Authorities and several other smaller-scale programs are responsible for planting over 1 billion trees on private lands across the province. The lessons learned from these programs include afforestation techniques, tending and harvesting techniques, greater awareness of the ecological role of plantation forests, as well as an understanding of what motivates private landowners to undertake afforestation.

Historically, the Ministry of Natural Resources (MNR) and the Conservation Authorities have been the agents of many of the afforestation programs for private lands in Ontario. However, since the late 1980's many other agencies have become involved in tree planting programs, in part due to the exit of MNR from afforestation planning and operations. These include the Ontario Soil and Crop Improvement Associations' permanent cover program, Ontario Forestry Association's Project Tree Cover, Wetland Habitat Fund, Stewardship Council activities, and tree planting by individual landowners. The combined efforts of these agencies and individual landowners account for some 10 million trees planted since the late 1980's. However impressive this may be, it pales in comparison to the number of trees planted under previous provincial and Conservation Authority programs.

Many of the earlier afforestation programs concentrated on the afforestation of abandoned or marginal farmlands. Many of these sites had experienced severe soil erosion accompanied by significant reductions in site productivity. The afforestation and restoration of the ecological functions of these sites was considered to be of paramount public importance.

New environmental challenges such as the reduction of Greenhouse Gas Emissions and climate change are also of great public concern. The Ontario government, through the Ministry of Natural Resources, is investigating the role that forests in general, and afforestation programs in particular, may play in mitigating Greenhouse Gas Emissions through the sequestration of carbon. As part of this overall review, several components of study have been identified, including the need for a detailed report on past and current tree planting programs on private

lands. Other components have included a recent Survey of Farmers, Ranchers, and Rural Landowners (Environics Research Group 2000); the collection of native tree seeds; a review of the potential impact of changing climate on the genetics of our forest tree species; and a comprehensive review of the potential landbase for afforestation efforts (Boysen, 2000). Results of this overall review are expected by June, 2001. Several other government, agencies and industries are contributing to this effort, as the need for coordinated efforts is critical to the success of any new afforestation programs. For example, in southcentral Ontario, the Forest Gene Conservation Association is addressing the issue of seed source identity in the now private seed & stock sector with the introduction of a seed & stock certification program, to help ensure the long term adaptedness of the trees that are planted.

2. Private Forests in Ontario

There are some 60.9 million hectares of forested land in the province, representing approximately 57% of the 106.8 million hectare provincial land base (including water) (MNR 1996). Private forests account for approximately 5.6 million hectares or 8.2% of forested land and 5.2% of the total provincial land base (Table 2.1). About two-thirds of the private forests are located in the Southcentral Administrative Region of the Ministry of Natural Resources where they occupy approximately 38% of the land base.

Table 2.1. Land area of forest resources of Ontario 1996.

Land Class	Area (millions of hectares)	Percent of total area	Percent of forested area
Crown forest	51.2	47.9	84.1
Parks & Reserves	3.7	3.5	5.7
Federal forest	0.4	0.4	2.0
Private forest	5.6	5.2	8.2
Sub-total Forested land	**60.9**	**57.0**	**100.0**
Non-forested land	37.4	35.0	
Water	8.5	8.0	
Total area	**106.8**	**100.0**	

Source: MNR 1996.

2.1 Landowner Interest in Planting

A recent survey of rural landowners in Ontario suggests that landowners continue to be enthusiastic about planting trees on their properties (Environics Research Group 2000). Some 20% of landowners have planted blocks of trees (as opposed to windbreaks or hedgerows) within

the last 5 years. The average size of plantation was 6 ha (15 ac.) while 72% of landowners planted 2 ha (5 a.) or less. Other information of note were:

- Approximately 39% of those who established plantations over that period purchased seedlings from private nurseries. Tree species and the health of the seedlings were the two most important factors influencing the purchase decision. The price of trees ranked third among significant factors that influenced the decision to purchase.
- Approximately 31% of landowners expressed interest in planting some portion of their properties. The average area that would be planted was 15 ac., while 77% would plant 10 acres or less.
- There is price sensitivity to the cost of seedlings and planting among those landowners expressing an interest in planting (Table 2.2).

Table 2.2. Ontario landowner interest sensitivity to seedling and planting costs.

Landowner Interest	**Seedling Price and Planting Cost Scenario**			
	Scenario A	*Scenario B*	*Scenario C*	*Scenario D*
	Landowner pays full cost of seedlings and planting	Free seedlings and all planting costs covered	Free seedlings and all planting costs covered plus landowner is paid $10/ac/yr for 20 yrs.	Free seedlings and all planting costs covered plus landowner is paid $50/ac/yr for 20 yrs.
Average area that would be planted	17 ac.	18 ac.	24 ac.	27 ac.
Percentage of landowners who would plant 10 ac. or less	77%	82%	78%	75%

Source: Environics Research Group 2000.

3. Afforestation in Ontario – The Early Years

The early history of afforestation in Ontario has been well documented by Coons (1981, 1988) and others. The tree planting movement in Ontario had its roots in the agricultural sector. Well before the provincial government was actively involved in forest management and afforestation, farmers and farm organizations such as the Ontario Fruit Growers Association, recognized the importance of restoring tree cover to the landscape. Extensive clearing of the forest during the mid-1800's resulted in serious problems for agriculture and settlement (Figure 3.1). Forests were driven back, fuelwood became scarce, and the incidence and damage by flooding increased. Soil erosion, soil infertility, and wind presented serious problems to the late 19th century farmer (Coons 1981). By the late 1870's eminent horticulturalists such as William Saunders (who in 1886 became the first director of the Agricultural Experimental Farm in Ottawa) began to promote afforestation as one means of preventing further degradation of agricultural lands.

Figure 3.1 Eroding agricultural lands.

The Ontario Legislature in 1871 passed "An Act to encourage the planting of trees upon the highways in this Province, and to give a right of property in such trees to the owners of the soil adjacent to such highways" (White 1899). This appears to be the first time that legislation was enacted to encourage tree planting in Ontario. The Act was superseded by *The Ontario Tree Planting Act 1883.*

On April 3, 1880, the Ontario Government appointed the Ontario Agricultural Commission to study the state of agriculture in the province. Forestry was included among the many subjects of investigation with particular attention given to means of promoting tree planting by individuals or corporations. Suggestions included government assistance in the form of grants, exemptions of private lands from municipal taxation, and the establishment of government tree nurseries.

Following a recommendation of a committee appointed to attend the 1882 American Forestry Congress in Cincinnati and Montreal, *The Ontario Tree Planting Act 1883*, was passed to encourage planting and care of trees along public highways and along the boundary lines of adjoining farms. The act provided for payment to landowners of up to $0.25 per tree with the costs shared equally by the municipality and the province. Landowners were paid three years after planting if the trees were healthy. The main source for stock were wild seedlings and saplings dug from surrounding woodlots. Thomas Southworth, Clerk of Forestry for Ontario reported in 1896 that some 75,000 trees had been planted during the nine years that the Act had been in effect (Southworth, T. *in* Forestry Ontario 1896 pp 40-42) (Figure 3.2).

Figure 3.2 Tree planting in the early years.

Southworth lamented the "somewhat meagre result for nine years" and offered several reasons why the Act was not generally more successful, including the three-year delay between planting and the receipt of government payments, and technical details regarding the plantings themselves. Although this first attempt at large scale afforestation did not achieve its intended goals, it is nevertheless considered to be a turning point in the afforestation efforts in Ontario.

In 1879, officers, students, and alumni of the Ontario Agricultural College in Guelph formed the Ontario Agricultural Experimental Union with a goal of establishing a system of cooperative agricultural experiments throughout the province. By 1899, there were 12,035 experimental plots (primarily agricultural crops) set out on 3,485 farms throughout Ontario. In 1900, the Experimental Union established a forestry committee to oversee similar experiments in afforestation. Led by E.C. Drury, (who was later to become Premier of Ontario in 1919), the Experimental Union urged the government to determine the amount of lands unfit for agriculture and to undertake the practical afforestation of those lands. The proposals resulted in the hiring of Dr. Justin Clarke as the first Provincial Forester for Ontario.

The need for one or more provincial tree nurseries to provide planting stock at a reasonable price was becoming clear. Farmers regarded the planting of commercial nursery stock as too expensive for large scale afforestation purposes. After receiving the proposals of the Experimental Union, the Hon. John Dryden, Minister of Agriculture took immediate steps toward establishing a forest tree nursery on 2 acres of land at the Ontario Agricultural College, Guelph in 1905. This nursery was later transferred to St. Williams in 1908. The first director of the fledgling nursery was Edmund J. Zavitz who is generally regarded as the "father of afforestation" in Ontario. During his illustrious career as a forester, Zavitz initiated many of the components of the province's former forest management and extension programs. Between 1905 and 1908, he identified some 8,500 square miles of "wastelands" in southern and central Ontario that were no longer fit for agriculture but that were suitable for growing trees (OMNR 1986). His study led to the establishment of provincial forestry stations and provincial tree nurseries in the "wasteland" areas.

Figure 3.3 Young conifer plantation established under the Agreement Forest Program.

Large-scale afforestation of private lands gained momentum in 1905 with the free distribution of trees from provincial nurseries to landowners. From 1905 to 1919, some 3.4 million trees had been distributed to private landowners (Coons 1981). It was clear however, that a much greater effort was required to reforest the large wasteland areas. Under the leadership of Premier E.C. Drury (1919-1923), the government passed *The Reforestation Act 1921*, enabling the province (through the Department of Lands and Forests) to enter into agreement for reforesting, developing and managing lands held by counties. The Agreement Forest program that resulted from this legislation changed the landscape across southern Ontario (Figure 3.3). Two new nurseries and forest stations were opened at Orono and Midhurst in 1922 in anticipation of the increased demand for nursery stock. In 1921 and 1923, transplant nurseries were opened at Sand Banks (1921) and Kemptville (1923) and the seed plant at Angus was established (1923) (Coons 1981). Over the next 33 years, eight more provincial tree nurseries were established (Appendix B).

4. Agreement Forests: 1921 -1998

Thomas Southworth, Director of Forestry first expressed the concept of municipal forests in the 1903 report of the Bureau of Forestry. Southworth reasoned that if municipalities were permitted to retain the ownership of lots that were purchased at tax sales, a nucleus might be established for a system of municipal forest reserves (Coons 1981). *The Counties Reforestation Act 1911*, provided that a county could pass by-laws for purchasing or leasing lands suitable for afforestation purposes. In 1921, *The Reforestation Act* was passed enabling the province to enter into agreement for reforesting, developing and managing lands held by counties. In 1922, Simcoe County was the first to enter into an agreement. The Counties of York (1924), Northumberland and Durham (1924) and Ontario (1925) soon followed. By 1940 twelve counties were participating in the program.

A growing concern over erosion and flooding problems in southern Ontario led to the introduction of *The Conservation Authorities Act 1946* enabling individual Conservation Authorities to be formed within various watersheds. Twenty-two Conservation Authorities eventually joined the Agreement Forest program with 36,796 hectares of land.

Legislative changes in 1945 and again in 1960 also made it possible for townships and municipalities respectively to become involved in Agreement forestry. Finally in 1975, Domtar Inc. became the first corporation to participate in the program. Over a 76-year period (1922-1998), that the program was in effect, the number of Agreement holders varied as new owners entered into agreements while others decided to leave the program. By 1982, the program grew

to include 59 agreements with 106,596 hectares of land (Table 4.1) (OMNR 1986). When the program was discontinued in 1998, there were 56 agreements with 128,853 hectares of land.

Table 4.1 Agreement Forest area by ownership group - 2000.

Ownership group	Number	Area (ha)
Counties	16	59,606
Regional Municipalities	6	19,036
Townships	6	1,131
Conservation Authorities	26	44,487
Federal Government Agency (National Capital Commission)	1	2,752
Corporation (Domtar Inc.)	1	1,841
Total	**56**	**128,853**

Source: Boysen 2000.

The Agreement Forests program consisted of a partnership between the Agreement holder (e.g., a county) and the Government (Ministry of Natural Resources). Features of an agreement were outlined in a Department of Lands and Forests publication entitled Municipal Forests (Circular No. 14, February 1927, 19p.).

- An Agreement holder purchased the land in blocks of not less than 400 ha. (1,000 ac.) in area.
- Funds for the purchase were supplied entirely by the county (Conservation Authorities received a government grant equal to 50% of the value of the land).
- Land was deeded in the name of the Agreement holder and leased to the province for a specific period of time – initially 30 years.
- The province assumed all responsibility for establishing the forest and maintaining it over the term of the agreement. This included supplying and planting the trees, infrastructure and facilities, and any labour required.
- The province collected any revenues from the sale of forest products. Revenues were entered as credits to the forest account.

As the forests matured, the need for the province to act as the sole manager of these areas declined. The owners were becoming increasingly involved in the day-to-day management, and the public was beginning to take a more active interest in the long-term sustainability of the forest for all values. In 1994, the Ministry of Natural Resources began to negotiate the termination of the formal agreements with the owners, thereby transferring all management responsibilities. Due to the unique accounting system of the agreement forest program (all costs

and revenues were recorded in a ledger book), some forests were "in the black" and transition of responsibility was not an issue. Many others were "in the red", meaning that revenues had not caught up to the expenditures at that time. Owners were reluctant to assume both management responsibilities and the outstanding net management costs at the same time. Accordingly, the provincial government agreed to finally ignore these outstanding costs, and view them as an investment in a healthy natural environment instead. This cleared the way for final negotiations with the remaining owners. Since terminating the formal agreement, many agreement forests have continued to thrive – generating income, providing employment for local workers, and providing key wildlife habitat and recreational areas for the local populations.

4.1 Accomplishments

- Approximately 147.5 million trees planted (Figure 4.1; Appendix A).
- Long term planning for seed and stock needs and seed source and stock deployment control provided by MNR nursery system
- The Agreement Forests program satisfied the need to reforest the "wastelands" identified by Zavitz in 1909.
- This provided a good example of how to reforest and restore critical areas. Some forests are in blocks as large as 27,000 acres.
- The province made substantial contributions to the purchase of those lands, enabling the Agreement holders to acquire the lands.
- Elected officials and the public (through the Conservation Authorities) were involved in the program. In essence, the Agreement Forests were the first community forests in Ontario.
- The program left a legacy of well-managed forests throughout Ontario and strengthened the concept of public ownership of natural areas in the province.
- As the forests matured, they have provided significant areas of wildlife habitat; have provided employment and income for their owners; have stabilized strategic watersheds; and have served as a demonstration of large scale afforestation efforts.
- Because MNR was also the manager of the province's Crown lands, there was extensive research and development activities that continually improved the forest management practices on these lands.
- The agreement was registered against the title of the property, thereby ensuring long-term stability and protection of the investment.

4.2 Weaknesses

- Because most forests started from bare ground, many of the forests had accumulated more expenditures than revenue when the Agreement holders assumed responsibility of the management and administration of their forests. However, the more mature forests had begun to generate revenue in excess of expenditures. This demonstrates that any investment in afforestation will require a significant period of time before investments (such as tree planting costs) can begin to pay dividends.

- Because the Ministry of Natural Resources acted as the manager of the forests, some owners were not engaged in either the day-to-day management activities or in the long-term rationale for these lands. Annual debates would occur across the province as to the "true value" of these properties. Some owners would prefer to sell their properties to offset other expenditures, thereby removing these forests from public ownership.

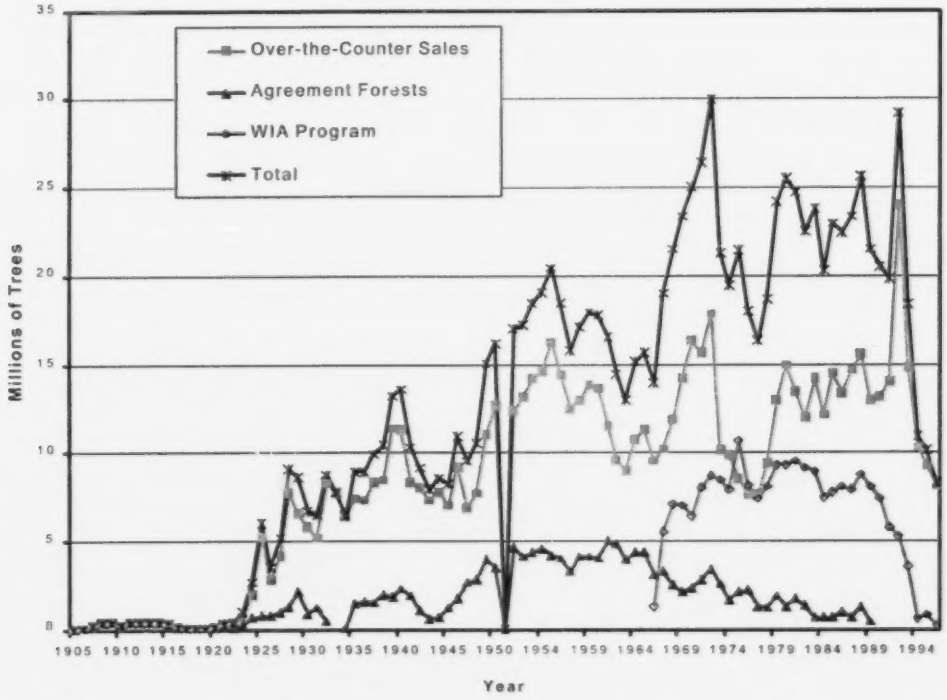

Figure 4.1. Ministry of Natural Resources tree seedling distribution to private lands: 1905– 1994.

5. Conservation Authorities: 1946 - present

In a landmark article, A New Reforestation Policy for Ontario (Farmers Advocate, September 10, 1936), Watson H. Porter called for a forward-looking afforestation and restoration program that would have broad public appeal and would galvanize municipalities across the province into taking soil and water conservation seriously. Response to the idea was favourable and following a series of regional meetings, the Ontario Conservation and Reforestation Association (OCRA) was formed (Porter 1940). For the financing of meetings, tours, field days, and the printing of literature, it received annual grants from its member counties. The OCRA drew its membership largely from the reforestation and agricultural committees of the counties but anyone was welcome to attend. As its membership was composed largely of municipal officials, it was in a strong position to influence the government regarding conservation matters (Richardson 1974).

Between 1936 and 1954, when the association was active, much progress was made in coming to grips with conservation problems; a Conservation Branch was established in the newly formed Department of Planning and Development; the *Conservation Authorities Act 1946* was passed and several authorities formed; the *Trees Conservation Act 1946* was passed; two new tree nurseries were established in 1946 at Kemptville and Fort William (Thunder Bay); planting stock for afforestation increased from 10 million trees in 1937 to 17 million trees in 1940; district foresters were appointed for southern Ontario; among other accomplishments. The persistent efforts of OCRA members are credited with hastening this period of remarkable advancement in conservation and forestry in the province.

The Ganaraska Authority was the first to undertake afforestation on a large scale. Some 20,000 acres, largely on the interlobate moraine (the Oak Ridges Moraine) and consisting of many plantable areas and woodlands was proposed as the area for the Ganaraska forest. The Authority determined that the best solution for managing the forest would be to bring it under the same agreement as that used for county forests. However, whereas the agreements with counties required that they must acquire and pay the full price of the land, the authorities were given a grant of 50 percent of the cost of the land (Richardson 1974). By 1970, twenty-two authorities had forests with a total of 36,796 hectares managed by the Department of Lands and Forests.

Early in the work of the Conservation Authorities, much emphasis was placed on partnerships with landowners to improve their properties through conservation projects. Afforestation lent itself readily to this objective. To assist, some of the authorities purchased tree-planting machines and under the supervision of authority personnel, planted trees on private land at cost. A thorough account of the rise of the Conservation Authorities and their contribution to afforestation on private lands can be found in: Conservation by the people: The history of the conservation movement in Ontario to 1970 (Richardson 1974).

While the Ministry of Natural Resources W.I.A. program was in effect from 1966 to 1993, the Conservation Authorities positioned themselves to provide afforestation services to those landowners who did not qualify for the WIA; that is landowners with less than the minimum 5 acres required under the WIA program. In this regard the WIA and the Conservation Authority afforestation programs did not compete for landowners. Planting by Conservation Authorities increased steadily throughout the period that the WIA program was in effect. Shipments of nursery stock from provincial nurseries to the Conservation Authorities were relatively stable over the same period, averaging 2 - 4% of total shipments from 1966 - 1986 and 6 - 9% of total shipments from 1987-1993.

5.1 Features of Current Conservation Authority Afforestation Programs

- Scale of programs varies however many of the Conservation Authorities have developed large-scale planting programs.
- Program objectives vary, however many CA's cite water conservation, erosion control, site restoration, and increasing tree cover in the watershed as primary objectives.

- Approximately 60% of the authorities have minimum area requirements ranging from 1–5 acres. One authority requires a minimum expenditure of $500.
- About ¾ of the authorities require the landowner to sign an agreement, for the purpose of protecting the public interest where cost-sharing arrangements are in effect (Example agreement in Appendix C). These agreements are not deeded to the land.
- Prior to 1997-98 stock was obtained from provincial nurseries. After the provincial nurseries were closed or privatized, the Conservation Authorities have purchased stock from private nurseries. Two authorities, Grand River Conservation Authority and Toronto and Region Conservation Authority, operate their own nurseries to satisfy some of their stock requirements.
- The cost of the nursery stock is either borne entirely by the landowner (60% of programs have this arrangement) or is shared between the landowner and the Conservation Authority. Similar arrangements apply to the cost of planting.
- The planting is done by the Conservation Authorities (46%), landowners (28%), or by planting contractors (26%).

5.2 Accomplishments

Of the 38 Conservation Authorities (CAs) in the province, more than half have established afforestation programs for private lands. Although the objectives for the afforestation programs are diverse, many authorities cite erosion control, afforestation of marginal and sub-marginal agricultural lands, and windbreak establishment as primary objectives for their planting programs.

Collectively the Conservation Authorities have planted over 30 million trees on private lands through their own afforestation programs. The Conservation Authorities have also planted approximately 9.4 million trees on their own lands.
Among the noted accomplishments of authority afforestation programs are:

- Over 30 million trees planted on private lands (Table 5.1).
- Inclusive, filled the void in MNR programs such as the WIA program because landowners could enter the program with as little as 0-5 ac, 100-500 trees, or some minimum expenditure, e.g. $500.
- A high level of community involvement in afforestation through community tree plants, service organizations, and inclusive programs.
- Consistent, reliable, long-established (familiar to landowners) programs.
- Flexible, i.e. flexible minimum requirements, programs can be tailored to meet landowner and CA requirements, some CA's have incorporated post-planting tending into their programs.
- Long term planning for seed and stock needs and seed source and stock deployment control provided by MNR nursery system while the system was in operation.
- Many programs provided subsidies or cost-sharing arrangements to landowners to help offset the cost of seedling acquisition and planting. This encouraged more landowners to participate in the afforestation programs.
- Authorities are able to provide technical assistance to participating landowners.

- Some authorities include plantation tending (e.g., a second application of herbicide to control competing vegetation) as part of their afforestation program. This greatly increases the survival of the newly planted seedlings.
- Programs promote multiple forest objectives, e.g. soil conservation, water recharge, wildlife habitat, recreation, timber products.

Table 5.1. Statistics on Conservation Authority afforestation programs for private lands.

Year	No. Trees	Year	No. Trees	Year	No Trees
1964	100,000	1976	355,175	1988	1,679,777
1965	100,000	1977	273,555	1989	1,735,000
1966	114,000	1978	429,330	1990	1,992,995
1967	392,515	1979	719,150	1991	1,927,495
1968	339,125	1980	622,400	1992	2,300,300
1969	205,000	1981	632,225	1993	1,541,165
1970	408,300	1982	521,745	1994	1,496,875
1971	343,375	1983	702,875	1995	1,385,180
1972	372,750	1984	937,085	1996	958,927
1973	943,278	1985	928,620	1997	346,530
1974	613,500	1986	959,525	1998	733,695
1975	567,950	1987	1,608,985	1999	714,143
				2000	713,539
				Total	**30,716,084**

Source: Data obtained through a survey of tree planting by Conservation Authorities. These trees were supplied from Provincial nurseries and are contained in "over-the-counter sales" shown in Appendix A.

5.3 Weaknesses

- The decision to close the provincial nurseries coupled with the high cost of acquiring stock and the issues of suitable species, seed sources and stock quality from private nurseries has significantly affected authority afforestation programs. The requirement for full cost recovery now limits the scale and scope of many planting programs.
- Lack of system and awareness of need for advance planning for seed and stock needs and seed source and stock deployment control once MNR nursery system closed down.
- Many Conservation Authorities do not specify minimum area requirements for landowners to participate in their afforestation programs. Others require that the area being planted be at least 1-5 acres. As a result, the average size of plantations is small. Small plantations often have minimal impact on the landscape and invariably contribute to rather high nominal and 'per acre' administration and overhead costs.
- Authority programs are weak in site preparation and plantation tending (e.g. herbicide) due to the high cost of these activities. Conservation Authority programs are not supported by a dedicated research program, and therefore may not be exposed to new or emerging concepts in forest management.

- Some Conservation Authorities rely on provincial or federal "make work" programs as a source for tree planters. In many cases these persons are not highly motivated to plant trees and planting quality can suffer as a result.
- Conservation Authorities generally only exist in southern Ontario (with notable exceptions in Timmins, Thunder Bay, and Sault Ste Marie). As a result, landowners outside the jurisdiction of Conservation Authorities do not have access to these services.

Many Conservation Authorities have also participated in provincial and other afforestation programs. These include Project Tree Cover of the Ontario Forestry Association (1992-1997); Ontario Soil & Crop Improvement Association's (OSCIA) – Permanent Cover Programs I & II (1990-1993); Wetland Habitat Fund (1997- present); Ontario Environmental Farm Incentive Program (1993-present); and regional and local afforestation programs (e.g. Town of New Tecumseh/NVCA Tree Planting Partnership). The objectives and administration structure of these programs varies. The Conservation Authorities have high praise for programs such as the OSCIA Permanent Cover II and the Wetland Habitat Fund. Common elements shared by these programs are the substantial subsidy provided to landowners and the promotion of tree planting opportunities. The authorities have planted approximately 2 million trees through these and other provincial and private afforestation programs.

6. Woodlands Improvement Act: 1966 - 1993

The Woodlands Improvement Act (W.I.A.) 1966 legislation and implementation program was developed in response to an increasing recognition by the Department of Lands & Forests field staff that large areas of privately owned sub-marginal agricultural lands were suitable for afforestation. In addition, it was noted that extensive areas of woodlands required pre-commercial thinning and stand improvement. In both situations there was little incentive for landowners to carry out the work since no short-term income could be realized from the operations.

In 1962, J.W. Spooner, Minister of Lands & Forests proposed policies and programs that would assist landowners in reforesting and otherwise managing idle lands. Following the success of provincially-assisted afforestation trials on private lands in south-western Ontario in 1964 and 1965, the *Woodlands Improvement Act 1966* came into being. The legislation allowed the Department of Lands & Forests to enter into agreements with individual landowners to provide assistance with afforestation and stand improvement. The program was exceedingly popular with landowners. From rather modest beginnings, the number of properties under agreement peaked at over 10,000 in the early 1980's although the total area under agreement continued to increase through the 1980's (Table 6.1). However, as a result of provincial government restructuring, the MNR began to phase out the program in 1993. The Woodlands Improvement Act was rescinded in 1998, but the essential provisions of providing for agreements with landowners were incorporated into the revised Forestry Act in 1998.

Table 6.1. W.I.A. agreements for selected years.

Year	1970	1981	1987
No. of properties under agreement	1925	10,750	9963
Total area under agreement (ha)	44,800	110,000	137,800

Source: MNR Annual Reports. No data after 1987.

6.1 Program Features

Features of an agreement were outlined in Private land forests: A public resource (MNR 1982).

- A minimum of 5 acres was required to qualify for the program.
- Under a Woodlands Improvement Agreement, (Example W.I.A. Agreement in Appendix C) provincial forestry staff prepared a work plan and either provided or paid for the work to be undertaken.
- The landowner committed the land to forestry for 15 years, agreed to give adequate protection, and purchased the trees for planting. The trees were provided by provincial nurseries at a subsidized rate (The supply of seed & stock was also managed by the MNR to ensure a continuous supply of suitable species and seed sources.) This is a good example of a cost-shared planting program. Upon expiry, the original agreement could be replaced by an Advisory Services Agreement, whereby the MNR provided the necessary management advice at no cost to the landowner.
- Agreements were not registered against title to the property.
- The area under the agreement qualified for the managed forest property tax reduction program that was in effect from 1975 to 1993, and re-initiated in1996 to present.
- Agreements were with the original landowner. If a property was sold, the new landowner could agree to assume the responsibilities of the vendor under an Assumption Agreement. However, if the original owner wished, they could simply pay back all management costs borne by the MNR, and exit the agreement in that manner as well.
- The program operated across the province, and many areas in northern Ontario were also reforested as a result.

6.2 Accomplishments

- Approximately 213 million trees planted on private land (Figure 4.1; Appendix A).
- The W.I.A. program provided strong coordinated support and technical expertise to landowners for all management activities from seed and stock production to site assessment and preparation to planting, maintenance, and thinning.
- Landowners were invited to participate in annual WIA field days, where organized tours of different properties demonstrated alternative management concepts and techniques. Landowner education and awareness was a key objective of the program.

- Long term planning for seed and stock needs and seed source and stock deployment control provided by MNR nursery system
- The program contributed to afforestation on private lands on a larger scale than was possible before the program.
- Landowners had increased potential to earn future income from their lands through the sale of wood products.
- The program provided the province with an opportunity to invest in its own future through economic activity generated by the sale of wood products.
- Consistency fostered awareness and trust of landowners.
- The program focus was on timber production, however landowners could specify other management objectives.

6.3 Weaknesses

- The minimum 5 acres were regarded as being substantial when compared to the area that was being reforested by individual landowners prior to the program. However, 5 acres is a relatively small area and can result in a fragmented forest landscape.
- Because of the "first-come, first-served" nature of the program, operational costs were higher than those experienced in the Agreement Forest program. The result was many, smaller forest plantings randomly distributed across the landscape. This has prevented achieving any economies of scale in thinning and subsequent management of some of these plantations.
- Because the MNR did most of the work, the landowners did not always participate fully setting objectives or in management activities and may not have understood what had been done or what needed to be done once MNR participation in the program ended.
- The program was considered relatively expensive to administer because the MNR had to maintain sufficient professional and technical expertise to service and monitor its commitments and activities under the program.
- While there was a legal agreement with the landowner, it was difficult for the MNR to keep track of changing landowners, and to track down former landowners to ensure that they met their obligations.
- Once the 15 year agreement expired, the landowner could do as they wished with the property. As a result, many properties were severed or sub-divided for new housing, and may have fetched a higher market value because of the planted trees. This is especially true in areas closer to higher population centres.
- Staff funding cuts in the early 1990's and subsequent closure of MNR nurseries that provided subsidized nursery stock contributed to the end of the program, although landowner support for the program continued.

7. Project Tree Cover: 1992 - 1997

Project Tree Cover (PTC), launched in the fall of 1992, was a partnership under Tree Plan Canada between the National Community Tree Foundation (NCTF), Forestry Canada, the Ministry of Natural Resources, and Trees Ontario. Tree Plan Canada (TPC), a national tre

planting and care program was established under the Green Plan to offset the global warming problem. Funding and technical assistance was provided by Forestry Canada, and the program was managed by NCTF (a non-profit charitable foundation). Trees Ontario was a program of the Ontario Forestry Association (OFA) that was established with MNR assistance in 1990. The above parties signed a memorandum of agreement in December 1992. Trees Ontario would coordinate the planting of trees supplied from MNR nurseries, and later private nurseries, using funding from Tree Plan Canada. MNR agreed to supply technical support.

The overall objective of PTC was to establish trees in areas currently lacking forest cover. The program target was the creation of approximately 10,000 ha of woodland cover (over 16 million trees) at a projected total expenditure of $15 million over 5 years. The plan called for up to 3.7 million trees to be planted annually, following the start-up year (1992/93) in which 2 million trees would be planted. The program was in effect for 5 years and ceased in 1997 for several reasons including NCTF funding constraints, MNR staff reductions and nursery closures, and an apparent lack of coordination between the OFA and its partners in program delivery.

7.1 Program Features

PTC was designed for rural landowners having relatively small properties, although this was in direct competition for the same pool of landowners routinely targeted by the Conservation Authorities. Funding was restricted to private land sites 2 – 4 ha. in size (equivalent to 3,500 – 8,500 trees). The following criteria were established:

- Trees could not be established primarily for the purpose of commercial production (i.e. timber, Christmas trees, or landscape trees).
- Landowners had to sign a 5-year commitment to maintain the trees.
- Landowners had to contribute $0.20 per tree in cash or contribute work of equal value prior to commencement of planting.
- A tree establishment plan had to be prepared and signed by MNR technical staff.
- Planting and tending contracts were awarded through competitive tender process and a "Contractor Performance Report" was used as the basis for payment for work performed.
- The OFA conducted a follow-up survey of participants (survey responses are on file at OFA).

The program was administered through the Ontario Forestry Association's Trees Ontario program, including:

- Handling and approval of applications,
- Arranging planting operations through silvicultural contractors, Conservation Authorities, or the MNR.
- Financial accounting and record keeping,
- Promotion of the program.

The MNR agreed to:

- Provide tree seedlings from provincial nurseries under a cost sharing arrangement with the landowner. MNR contribution was $0.40 per tree (in kind). The landowner was

responsible for maintenance of trees planted and for contributing $0.20 per tree (cash or in-kind).

- Contact landowners and groups interested in participating, inspect the land, prepare detailed planting plans,
- Monitor the field work including site preparation, planting, and tending.

7.2 Accomplishments

- Over the five-year period 1992–1997 that the program was in effect, approximately 6.4 million trees were planted (as opposed to the 16 million tree target) (Table 7.1).
- Over 700 landowners participated in the program.
- Although the Forestry Act required that trees provided to any program that were grown on provincial nurseries had to go to landowners with more than 5 acres, many MNR districts agreed to provide stock to smaller properties. When the WIA and the National Soil and Water Conservation – Permanent Cover programs were discontinued, the OFA responded by removing the restriction on maximum size of area to be planted.
- As of November 1998, 1,021 ha. (2,080,000 trees) had received tending under the program. This represents approximately one-third of the trees planted.

7.3 Weaknesses

- Start-up delays in 1992 reduced the number of trees planted in 1993 to 872,000 - well below the target of 2 million trees.
- PTC was not funded or supported at the level that was originally proposed.
    - In 1993/94 and 1994/95 planting targets were lowered to 1.3 million trees (3.7 million target) to reflect revised market expectations (due to uneven local marketing and competing programs) and NCTF funding constraints.
    - For 1995/96 a funding cap of $300,000 (equivalent to 1 million trees) was placed on the program. Forestry Canada ceased to provide all services to PTC effective December 1995. To replace the loss of federal funding, the OFA responded by increasing the landowner share from $0.20 to $0.35 per tree for 1995/96 and to $0.50 per tree in 1996/97.
- MNR staff reductions decreased its ability to deliver on the planting plans, expertise and monitoring. The OFA hired staff on short-term contracts to assist the MNR in areas of heavy workload and in some areas supplied the MNR with rental vehicles.
- MNR nursery closures beginning in 1996 resulted in a large reduction of the number of trees and suitable sources and tree species available for the program, eventually contributing to the demise of the program.
- Customer surveys suggested that landowners were prepared to pay as much as $0.40 or $0.50 per tree "in the ground", but in general they were not prepared to pay the full $0.75 per seedling cost of the program.
- Correspondence suggests that there was a lack of communication between the OFA and its partners in program delivery, particularly between the OFA and Conservation Authorities.

Table 7.1. Project Tree Cover planting statistics.

Year	Trees planted by landowners and planting contractors[2]	Trees planted by Conservation Authorities[2]	Total number of trees planted[1]	Average number of trees per landowner
1993	872,000		872,000	6,900
1994	1,275,000		1,275,000	8,300
1995	1,350,000		1,350,000	8,400
1996	769,000	731,000	1,500,000	12,000
1997	764,600	635,400	1,400,000	8,500
Total	**5,030,600**	**1,366,400**	**6,397,000**	**8,800 (average)**
Refills – all years			431,000	

Source: [1]Ontario Forestry Association Annual Reports 1993-1997.
[2]PTC annual list of approved projects 1993-1997. These trees were supplied from Provincial nurseries and are contained in "over-the-counter sales" in Appendix A.

8. Agroforestry Programs

Well before the provincial government and conservation authorities were actively involved in forest management and afforestation, farmers and farm organizations such as the Ontario Fruit Growers Association and the Ontario Agricultural Experimental Union, recognized the potential benefits of afforestation for producing fruit and nuts as well as for restoring tree cover to the landscape. These were the beginnings of an agroforestry industry in Ontario. Today, the agroforestry industry contributes an estimated $80 million to Ontario's economy annually. Industry experts suggest that there is considerable opportunity for growth in a number of commodity specific industries including high value timber production, maple syrup and edible nuts.

Because of the wide scope of agroforestry values, the industry is comprised of members with diverse interests. These include the Ontario Maple Syrup Producers Association (OMSPA), the Christmas Tree Farmers of Ontario (CTFO), the Society of Ontario Nut Growers (SONG) and the Ontario Soil and Crop Improvement Association (OSCIA). These commercial interests, in concert with the Ministry of Agriculture, Food and Rural Affairs (OMAFRA) and the Ministry of Natural Resources (MNR) support a variety of afforestation programs. The agroforestry industry also enjoys research and technical support from the University of Guelph.

8.1 Ontario Soil & Crop Improvement Association

The Ontario Soil and Crop Improvement Association (OSCIA), founded in 1939, is a non-profit farm organization that promotes the communication and facilitation of responsible economic management of soil, water, crops and air. The OSCIA membership represents virtually all

commodity groups across the province and is a credible, active, grassroots voice on agricultural issues. The OSCIA has 55 local county/district branches across the province and is a significant presence in all the major agricultural areas of Ontario.
The OSCIA is committed to four strategic directions: producer education, development and delivery of stewardship programs, development of local associations, and addressing consumer concerns on agricultural environmental issues.

Tree planting and afforestation have been important components of several of the OSCIA stewardship programs, including the Permanent Cover Programs I & II (1990-1993), Ontario Environmental Farm Plan (EFP) Incentive Program (1993-present), and the Restoration of the American Chestnut – Farm Response to a Species at Risk (1998-1999).

8.1.1 Permanent Cover Programs (PCP) I & II: 1990 - 1993

The PCP I & II programs promoted on-farm conservation by providing financial incentives for farmers to retire fragile agricultural land. Farmers were invited to submit 'bids' to secure up to $10,000 in federal contribution. Local OSCIA committees reviewed the bids and funding was awarded on the basis of local priorities. Bids were considered for different permanent cover projects including:

1. Grass buffer strips
2. Tree and grass buffer strips (8-20 feet wide with up to 3 rows of trees)
3. Enhanced buffers
4. Highly erodable, fragile land retirement (20 acres maximum, trees mandatory)
5. Flood plain (trees optional)
6. Wetland buffers
7. Tree windbreaks.

8.1.1.1 Program Features

- OSCIA assisted in program development and was responsible for program delivery.
- Contribution and Land Use Agreements were signed between the landowner and Agriculture Canada. Terms varied from 5, 10, and 15 year agreements (vast majority were 15 years).
- Budgets were made available to all agricultural counties and districts, with amounts based on row crop acres.
- For tree planting projects, the planting was typically done by the landowner or by a 'planting agent' under separate contract. Landowners had a choice between available 'planting agents' – Conservation Authorities or MNR.
- Most of the trees originated at provincial nurseries.
- Program allowed for tending of new plantations (usually involved a second herbicide treatment to control competing vegetation).

8.1.1.2 Accomplishments

- About 1800 farmers participated in the program, averaging 4.4 acres per project.

- Approximately 2.5 million trees were planted on fragile farmland across Ontario. Not all projects involved the planting of trees.
- Bid process allowed farmers to decide reasonable compensation (including opportunities for compensation for taking land out of annual crop production or pasture).
- Local farm committees awarded bids based on true value.
- Sites are casually policed by the local farm community to ensure compliance.
- Fair compensation through the tree planting contracts with planting agents.
- Farmers were responsible for their own project design and function.
- Long term agreements with Agriculture Canada formalized commitment.

8.1.1.3 Weaknesses

- Budgets limited the scale of the program. The programs were completely sold out.
- Federal funding expired in 1993.

8.1.2 Ontario Environmental Farm (EFP) Incentive Program: 1993-present

The EFP provides up to $1500 per farm business to help farmers implement new management practices that effectively address a 'poor' or 'fair' rating in their EFP. Expected benefits include erosion control; stream, ditch, flood plain management; woodlands and wildlife. To date, about $10.3 million has been claimed through incentives. Records indicate that every federal dollar paid out in grant stimulates a $3 expenditure towards the same project by the farmer.

8.1.2.1 Program Features

- The program is delivered through the OSCIA for the Ontario Farm Environmental Coalition.
- Of the 22 project worksheets, tree planting typically appears as an action item in 3 worksheets: soil management (planting tree windbreaks); stream, ditch, flood plain management (planting tree buffer strips along watercourses); woodlands and wildlife (wildlife corridors, plantings for wildlife?).
- No contribution or maintenance agreements are signed with these tree planting projects.
- The $1500 grant can be claimed for paid invoices for material and/or contractor costs. There is no requirement for farmers to show matching funds. The farmer's labour or materials are not eligible as paid work.
- The tree stock is obtained from several sources (e.g. private nurseries, Conservation Authorities).

8.1.2.2 Accomplishments

- Eligibility tied directly to having an appropriate peer reviewed Environmental Farm Plan.
- Provincial-scale program, widely recognized.
- A high 'return' for every federal grant dollar spent – 3:1.

8.1.2.3 Weaknesses

- No long term federal commitment to ensure that the program is sustained beyond 2001.

- Projects such as tree planting often are not given the same priority by the participants compared to many other activities around the farm that often hold promise for a much quicker economic return on investment.

8.1.3 Restoration of the American Chestnut – Farm Response to a Species at Risk: 1998 – 1999

The objectives of the program were to:

1. Use the American chestnut, a threatened species, as a focal point and springboard to draw the attention of the agricultural community towards the plight of wildlife species at risk on and around farm land.
2. Demonstrate a different approach to working with landowners towards restoring a species at risk.

The program was coordinated by the OSCIA and funded through:

- Agriculture and Agri-Food Canada through the National Soil & Water Conservation Program administered by the Agricultural adaptation Council
- Wildlife Habitat Canada
- Natural Resources Canada – Canadian Forestry Service
- Ontario Ministry of Natural Resources

8.1.3.1 Program Features

- The program cost-shared on establishment and maintenance costs on up to one acre of retired crop or pasture lands.
- Fifteen year conservation Agreements were signed between the farming landowner and the OSCIA.
- The planting was typically conducted by either the local Conservation Authority or Stewardship Council. The landowner was actively involved in site preparation, planting or maintenance.
- The American chestnuts (1,250) were obtained through the Grand River Conservation Authority nursery near Burford. The other hardwoods and conifers came from a variety of sources, primarily nurseries formerly operated by the province.

8.1.3.2 Accomplishments

- 11,550 trees planted (including 1,250 American chestnut) on 24 farms in 1999 only.
- The program was delivered by a farm organization (OSCIA) to the farming community.
- Participating landowners were involved in the planning and planting process.
- Planting sites were designed to satisfy the needs and interests of the farmers (i.e. erosion control, wildlife, biodiversity, future timber products).
- Engaged many interests from farm and wildlife organizations, and provincial and federal government agencies.

8.1.3.3 Weaknesses

- Budget limited the activities to 24 farms. OSCIA could not come close to meeting the demand and interest in the program.

- The two-year federal National Soil & Water Conservation Program was the primary financial supporter.

8.2 Ontario Maple Syrup Producers' Association (OMSPA)

There are about 1,200,000 commercial taps placed on 2,000 farms annually in Ontario. The maple syrup industry in Ontario generated an estimated $17.7 million dollars from the sale of maple products in 2000. At present, about two-thirds of the syrup consumed in Ontario is imported. Therefore, the industry in Ontario is seen as a growth industry. Modest growth of the industry has occurred over the past decade, tempered by high establishment costs facing prospective producers. OMSPA is actively supporting applied research and extension initiatives supportive of the maple industry, including the establishment of maple orchards.

8.2.1 Maple Orchards

- Maple orchards are intensively managed plantations of sugar and/or black maple planted with the objective of yielding high volumes of sweet sap. Across southern Ontario, planting of maple as managed orchard is advocated on productive lands and on well-drained stony land that may have been used previously as pasture.
- The program is currently small scale with emphasis on demonstration and learning.
- In the future, there is an opportunity for a partnership between OMAFRA, OMSPA and selected nurseries to set standards for stock production and produce a reliable source of seedlings for growers; also to develop vegetative propagation techniques for maple using scion material from sweeter than average sources.
- This program could be used as a model for other cooperative tree planting programs that involve several agencies and landowners.
- Quality sugar maple seedlings are available in bulk orders from a number of reputable private nurseries. The private industry will continue to be the key suppliers of conifer and deciduous seedlings for rural lands.
- Growers successfully transplant vigorous saplings from nearby sugar bushes into managed maple orchards. Maple trees as large as one inch in diameter at chest height are moved and can help advance orchard development by starting with larger trees.
- A directory of over 20 plantings has been published (OMSPA 1999); survival and growth performance information is summarized in it along with grower experience; users can contact the growers in the directory along with OMAFRA and OMSPA representatives for advise re: establishing and maintaining an orchard.

About 30,000 trees have been provided from private and provincial nurseries to support maple orchard establishment in the past 10 years, including about 20,000 trees from the Kemptville nursery in the 1990's.

8.3 Nut Tree Industry

For agricultural food production, nut culture is generally considered a component of orchard horticulture, making use of improved grafted cultivars. Managed nut orchards are not considered as afforestation and remain established entirely as a result of annual profitability. In non-orchard situations, nut trees of wild origin are planted to benefit wildlife and diversify tree species and is

a component of the agroforestry discipline. The Society of Ontario Nut Growers was established in 1972 and remains the primary promoter of nut planting in Ontario.

As horticulture, total nut production in Ontario continues to rise at incremental rates with a current annual value of $350,000. Some 255 farms in Ontario report nut production from approximately 142, 400 trees (OMAFRA 2000). At present, an estimated 1,012 hectares (2,500 acres) have been established. Most of these orchards are less than 10 years of age and are considered hobby scale, however more growers have been testing commercial markets with promising successes. A variety of species are being planted including black walnut (highest yielding cultivars) English walnut, Japanese heartnut, northern pecan, hazelnut and sweet chestnut. New production will continue to come on stream over the next few years as young orchards mature. There are only a few suppliers of grafted nursery stock and they continue to meet the demand for grafted trees and seedlings.

Sweet chestnuts have shown very good potential for market development within the last 10 years. Unfortunately, growers have learned that chestnut blight disease remains very active in Ontario. Currently there are no sweet chestnut trees available for either forest or orchard plantings that are resistant to blight infection. Since the 1800's when chestnut blight disease destroyed the native chestnut population in North American forests, most attempts to establish chestnut orchards are often infected by blight disease within 8 to 10 years of planting. A number of sweet chestnut cultivars previously imported from Asia are somewhat tolerant to blight infection but are not resistant.

The commercial nut tree industry has its greatest potential in Niagara and Southwestern Ontario where the regional winter and spring climates are moderated by the Great Lakes. These areas are typical of orchard horticulture. The modified region contains about 80% of the province's nut tree population. In eastern and central Ontario, the potential for the nut tree industry is more limited. There are a number of demonstration sites in Eastern Ontario. In locations distant from moderated climates, winter injury and late spring frosts make commercial nut ventures unprofitable.

8.4 Windbreaks and Shelterbelts

According to the Agriculture Census 96, some 8749 farms in Ontario report having windbreaks or shelterbelts. This represents approximately 13% of the 67520 farms that completed the 1996 census. This suggests that there may be considerable opportunity to increase the area of farm windbreaks and shelterbelts. Benefits from windbreaks and shelterbelts include reduced heating costs of buildings, reduced energy losses of livestock, control of soil erosion, improved crop yields (e.g. corn and soybeans), marketable products and the potential of trees to mitigate the effects of excessive nutrient loads and to filter harmful microorganisms from drinking water.

The number of trees required for establishing windbreaks or shelterbelts is relatively low so as to be affordable to farmers both in terms of cost and labour inputs when compared the number of trees required for larger afforestation projects. This is seen as a positive factor in encouraging landowners to establish windbreaks and shelterbelts.

9. Wetland Habitat Fund: 1997 - present

The Wetland Habitat Fund (WHF), initiated in 1997, provides landowners with financial assistance for projects that improve the ecological integrity of wetlands. The objectives of the WHF are:

- To promote ecologically sound landscape uses that meet the needs of waterfowl, wetland wildlife and people.
- To increase the abundance of wetland wildlife and to improve the quality and quantity of wetland habitats.
- To encourage landowners to participate in wetland habitat improvement, maintenance and monitoring.
- To have a positive effect on wetland habitat diversity to benefit waterfowl.

The fund is supported by:

- Wildlife Habitat Canada
- Ontario Ministry of Natural Resources
- Internationally by the North American Waterfowl Management Plan partners

9.1 Program Features

- A wetland conservation plan is required.
- The WHF favours project submissions with conservation plans that
  - contribute to the restoration and improvement of local wildlife habitat,
  - lead to benefits that can be enjoyed either directly or indirectly by the general public, and
  - encourage partnerships and foster co-operation among landowners, interest groups and conservation agencies.
- Eligible habitat projects may receive up to a maximum of 50% of project cost or $5000 (whichever is less). The landowner's contribution to the project cost can include in-kind support.
- Tree planting is often delivered through the Conservation Authorities and/or private consultants.
- Habitat inventories, wildlife population studies and capital costs (e.g. buildings, computers, vehicles, etc.) are not funded.

9.2 Accomplishments

- The total number of trees planted under the program was not available.
- WHF provides a substantial subsidy for small scale tree planting projects (source: comments from some Conservation Authorities that have participated in the program)

9.3 Weaknesses (where tree/ shrub planting are project components)

- The high cost of nursery stock and limited availability of desired species and adapted seed sources of trees and shrubs may limit the kinds of habitat enhancement projects.

- There is no provision in the fund to provide ongoing management assistance to landowners who are participating in the program.
- The narrow focus of the program and project criteria are somewhat limiting (source: comments from some Conservation Authorities that have participated in the program)

10. Stewardship Councils: 1996 - present

Stewardship Councils were initiated in 1995 under the auspices of the Ministry of Natural Resources. This program was started in response to changes in relationships between landowners, government, and corporations and groups with an interest in caring for land. The stewardship program is guided by the principle of "influencing" voluntary land management decisions, rather than enacting laws or other restrictions. During 1995 and 1996, coordinators were hired to help with the establishment of the Councils and to coordinate their activities. Councils have been formed for geographic areas that correspond to upper-tier municipal boundaries. The program is funded by the Ministry of Natural Resources. Once the Council is established, the coordinator takes direction from the Council, but under the supervision of an MNR area manager.

The Stewardship Councils are composed of members of the community representing a broad spectrum of landowners and land interests. Stewardship Councils are encouraged to:

- work on the principle that progressive and cooperative work can only be done if it jointly involves landowners and land interests to attain private land stewardship;
- find partners and local funding in order to carry out projects in their areas;
- provide a forum to recognize and influence community involvement and interest in private land stewardship; and,
- provide a focus and direction at the local level to develop entrepreneurial programs that provide opportunities for revenue generation.

A small amount of seed money is available from the Province to the Council for these projects.

Several Stewardship Councils have established modest tree planting programs. The objectives of these programs vary with local needs such establishing farm windbreaks, re-vegetating stream banks, addressing the issues of habitat fragmentation and loss of bio-diversity, and providing landowners with access to reasonably priced planting stock through bulk purchasing.

10.1 Program Features

- Very small-scale programs with specific local objectives.
- No minimum area requirements.
- About 50% of the Councils require the landowner to sign an agreement.
- Landowners or community groups do most of the planting.
- Stock is purchased from private nurseries. The cost of nursery stock is generally shared between the landowner and the Stewardship Council. In an innovative approach to stock acquisition, the Northumberland Stewardship Council has been active in bulk ordering on behalf of landowners and partner organizations for four years. Each year the order and interest is growing with an anticipated order for 75,000 trees in 2001. The

Peterborough and Victoria Stewardship Councils have joined the program to take advantage of bulk pricing and operational logistics. In the future, these Councils will have to consider securing long term access to tree seedlings, due to the lack of producers and limited supply of southern Ontario planting stock (reasonably priced and correct seed source).

10.2 Accomplishments

- Approximately 218,000 trees planted since 1996 (Table 10.1).
- Reduced cost of nursery stock to landowners.
- Excellent educational value in schools and the farm community.
- High landowner interest and involvement.
- Brings the landowner, Stewardship Council and other community groups together for a common goal.

10.3 Weaknesses

- Currently no long term (3 to 4 year) planning for seed and stock needs which private nurseries need to meet any stock demands and as such, no real reliable long term source of nursery stock.
- The high cost of nursery stock produced by the private sector limits large-scale planting.
- Low numbers of trees get planted, with significant organizational effort required.
- Landowners need a "push" or in extension terms "expression of help" to initiate these sorts of projects.
- No agreements signed and therefore no long term security for the future of the plantations.
- Poor aggregated record keeping procedures on tree planting efforts.

Table 10.1. Statistics of tree planting by Stewardship Councils.

Year	Trees planted
1996	1,500
1997	28,325
1998	29,825
1999	36,435
2000	121,865
Total	**217,950**

Source: Survey of tree planting by Stewardship Councils.

11. Ontario Power Generation - Carbon Sequestration and Biodiversity Management Program

- Ontario Power Generation (OPG) is committed to plant 1.6 million native trees and shrubs in southern Ontario over the period 2000 - 2005. The program is linked to OPG's Greenhouse Gas Management Strategy and Biodiversity Policy and is expected to provide the following benefits:
- carbon sequestration (in the order of 896,000 tonnes over the lifetime of the trees);
- biodiversity conservation – native tree planting linked to habitat restoration for woodland wildlife that are at risk because of habitat loss; and
- community goodwill.

11.1 Program Features

- Tree and shrub plantings will be targeted to expand upon key forested areas and connect woodland patches in the heavily disturbed and fragmented landscapes of southern Ontario.
- The program focuses on habitat restoration work for the conservation of biological diversity and will, where feasible, target planting programs that will aid in the recovery of populations of woodland dependent species that have been declining throughout much of southern Ontario.

11.2 Program Accomplishments

- Approximately 242,000 native trees and shrubs were planted in 2000, and 242.000 are scheduled to be planted in the spring of 2001, on selected sites in southern Ontario that are directly linked into priority natural heritage projects. OPG is currently working with several partners, including:
    1. Toronto and Region Conservation Authority (plantings of 200,000 native trees and shrubs at priority sites along the Oak Ridges Moraine including Glenn Haffy Conservation Area, Lake St. George site near Richmond Hill; and Glen Major Complex, in the headwaters of Duffins Creek, Pickering). OPG will be the TRCA's founding member for their Reforestation for Biodiversity Program;
    2. City Of Toronto (2,300 native trees and shrubs will be planted along seven sites selected for naturalization along the lower Don River valley lands); and
    3. Long Point Region World Biosphere Reserve (40,000 native trees and shrubs will be planted as part of their habitat restoration corridor project connecting St. Williams Forest to Turkey Point).
- OPG will plant the remaining 1.36 million trees and shrubs in the next five years through a variety of strategic partnerships, which will serve to address biodiversity conservation priorities and community needs. OPG is currently in discussions with several groups to identify appropriate priority natural heritage projects that will satisfy program goals.
- Program exemplifies how industry can be successfully engaged in the pursuit of sustainability, the conservation of biological diversity, and the triple bottom line of economy, environment and social benefits.

11.3 Program Weaknesses

- The program is focused on public lands because of the concern that private land planting can not guarantee the permanence of forest cover required to track afforestation efforts under climate change protocols.

12. Over-The-Counter Nursery Stock Program

With the creation of the first provincial nursery at the Ontario Agricultural College in 1905, landowners were able to acquire tree seedlings at no charge. This policy was eventually enshrined in the *Forestry Act 1960* and continued throughout the ninety-year period that provincial nurseries were in operation although subsequently landowners were required to pay a nominal amount for seedlings. For example, the *Forestry Act, 1980* authorized provincial nurseries to furnish nursery stock to landowners and public organizations at greatly reduced prices. These sales of nursery stock, termed Over-The-Counter (OTC) sales were extremely popular with landowners, service organizations, and Conservation Authorities, and provincial afforestation programs excluding the Agreement Forest and W.I.A. programs. OTC sales account for some 792 million seedlings (approximately 69%) distributed from provincial nurseries to private land between 1905 and 1996 (Figure 4.1; Appendix A). Appendix B provides a chronology of nursery stock prices.

12.1 Program Features 1980-1996

- Minimum order of 100 trees, increasing in multiples of 50 trees. Landowner paid $10 + $.025 per tree (*Forestry Act 1980*). A 1991 study of order size for OTC sales from the four southern Ontario provincial nurseries (St. Williams, Midhurst, Orono, and Kemptville), indicated that 60% of the 1,257 clients who obtained seedlings through the OTC program that year purchased less than 2000 trees. However, this accounted for only 4% of the trees sold. The remaining 40% of the clients who purchased more than 2000 trees accounted for 96% of the trees sold.
- Minimum area 2 ha.
- Supplied stock to Conservation Authority afforestation programs and provincial afforestation programs (excluding Agreement Forests and W.I.A. agreements for which nursery stock was allocated separately).
- The 4 provincial nurseries in southern Ontario supplied most of the stock for private lands.

12.2 Program Accomplishments

- Approximately 792 million trees supplied for afforestation of private land.
- A low cost source of seedlings for private landowners.
- Continuity of supply allowed Conservation Authorities and provincial programs to schedule planting in 2-3 years in advance. This facilitated long-term planning and budgeting.

12.3 Program Weaknesses

- Availability of subsidized seedlings from provincial nurseries may have discouraged private nurseries from developing capacity to produce stock at competitive prices.
- Private landowners may not have had access to or possibly did not obtain technical support prior to planting and this may have contributed to improper planting techniques or poor species choices for the sites involved. An aerial survey of 384 properties planted between 1975-1984 with stock obtained through the OTC program was undertaken in 1991. The survey revealed that 23% of the plantations were less than 10% stocked, while only 63% were greater than 30% stocked. A landowner education program was also proposed to provide those purchasing seedlings with technical information and planting tips. In response, a series of Extension Notes were created, including Planning for Tree Planting (OMNR 1995a); Clearing the Way: Preparing the Site for Tree Planting (OMNR 1995b); Careful Handling and Planting of Nursery Stock (OMNR 1995c); and Room to Grow: Controlling the Competition (OMNR 1995d).

13. Conclusions

Ontario has a rich legacy of tree planting on private lands. With modest beginnings in the late 1800's, provincial and other afforestation programs were responsible for shipping over 1 billion trees on private lands in the ensuing one hundred years (Figure 4.1; Appendix A). Public and private interest in tree planting continues to be strong and tree planting is seen as a means of addressing societal and environmental issues and concerns. A review of past and current tree planting programs reveals that successful tree planting initiatives share several common features. There are clearly defined objectives in response to societal and environmental needs.

1. The programs enjoy strong political, administrative, and public support.
2. The programs are consistent and continuous and provide the means and ways for private landowners to actively participate in forestry practices on their lands.
3. Cost-sharing with the landowners are essential to the success of the program. Cost sharing helps to offset the cost of seedling acquisition and planting, encourages landowner commitment to the program, and helps to ensure that the program is fiscally sustainable.
4. The program is managed efficiently with minimum 'layers' of administration. The success of the program is enhanced when the program is administered through a provincial or other public agency.
5. Program delivery, (i.e. site preparation, planting, tending) can be accomplished through a variety of mechanisms including individual landowners, Conservation Authorities, consultants, and contractors.
6. Nursery stock of the quantity and species required to support the program is available at reasonable cost.
7. There is funding available for follow-up treatments to enhance plantation survival.
8. Planted trees require good site preparation and proper follow-up tending if they are to become permanent forests.

14. Recommendations

1. Although the past achievements are significant, they are well below the potential for afforestation on private lands. There remain vast areas available that could be planted and a continuing need to budget for tree planting.
2. Rural landowners in Ontario are very much aware that forests can reduce the effects of climate change. A Provincial afforestation program for private lands in response to this important societal and environmental issue is likely to enjoy broad public, political, and administrative support.
3. Program funding should be at a level to ensure that program objectives can be achieved.
4. Cost sharing between the program agent and landowners should be a feature of any future tree planting programs.
5. Programs should be long-term and of sufficient duration to meet objectives and to satisfy the requirements for advance planning necessary for successful nursery stock production and tree planting.
6. Program costs should be controlled through efficient single-agency administration, cost-sharing arrangements, and by requiring a minimum area for program eligibility.
7. Technical standards and specifications for nursery stock and plantation establishment should be developed to ensure consistent planting success.

15. Information Sources

- Provincial nursery stock distribution (Appendix A) were obtained from MNR *Statistics* and *Annual Reports* for 1905-1989. No planting data or information regarding nursery shipments are reported after 1989.
- Information on tree planting by Conservation Authorities and Stewardship Councils was obtained through a survey developed specifically for this report (Appendix B).
- Information on Project Tree Cover was provided by the Ontario Forestry Association Annual Reports 1993-1997 and Project Tree Cover annual list of approved projects 1993-1997.
- Other program information was provided by the program proponents, e.g. Wetland Habitat Fund, Ontario Soil and Crop Improvement Association, Ontario Agroforestry Research and Services Sub-Committee.
- *Forestry Act* 1960 and 1980.

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17. Acknowledgements

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APPENDIX A – Trees Planted Under Main Afforestation Programs [1]

Year	Over-the-Counter Sales	Agreement Forests	WIA Program	Total
1905	10,000			10,000
1906	80,000			80,000
1907	200,000			200,000
1908	375,000			375,000
1909	380,000			380,000
1910	200,000			200,000
1911	350,000			350,000
1912	350,000			350,000
1913	400,000			400,000
1914	400,000			400,000
1915	325,000			325,000
1916	130,000			130,000
1917	100,000			100,000
1918	100,000			100,000
1919	40,000			40,000
1920	130,000			130,000
1921	291,769			291,769
1922	327,732	64,000		391,732
1923	699,618	285,000		984,618
1924	1,954,671	705,660		2,660,331
1925	5,277,237	780,250		6,057,487
1926	2,790,549	754,050		3,544,599
1927	4,176,205	1,004,350		5,180,555
1928	7,777,600	1,301,400		9,079,000
1929	6,549,642	2,102,748		8,652,390
1930	5,822,650	881,425		6,704,075
1931	5,220,946	1,250,250		6,471,196
1932	8,352,939	443,200		8,796,139
1933	7,817,312			7,817,312
1934	6,416,030	113,500		6,529,530
1935	7,444,897	1,463,450		8,908,347
1936	7,318,783	1,619,550		8,938,333
1937	8,360,067	1,538,075		9,898,142
1938	8,506,019	1,990,175		10,496,194
1939	11,391,462	1,866,775		13,258,237
1940	11,311,157	2,329,420		13,640,577
1941	8,360,319	1,918,675		10,278,994
1942	8,059,219	1,105,235		9,164,454
1943	7,334,194	586,770		7,920,964
1944	7,826,008	713,975		8,539,983
1945	7,056,936	1,190,300		8,247,236
1946	9,215,124	1,721,150		10,936,274

Year	Over-the-Counter Sales	Agreement Forests	WIA Program	Total
1947	6,895,252	2,650,026		9,545,278
1948	7,732,554	2,845,650		10,578,204
1949	11,089,554	3,942,315		15,031,869
1950	12,669,636	3,498,800		16,168,436
1951	12,353,019	4,657,125		17,010,144
1952	13,167,286	4,093,300		17,260,586
1953	14,188,800	4,341,925		18,530,725
1954	14,559,040	4,564,708		19,123,748
1955	16,254,270	4,199,075		20,453,345
1956	14,421,330	4,044,108		18,465,438
1957	12,523,099	3,267,310		15,790,409
1958	12,986,865	4,109,640		17,096,505
1959	13,809,125	4,114,129		17,923,254
1960	13,708,050	4,065,785		17,773,835
1961	11,505,775	5,063,860		16,569,635
1962	9,597,300	4,867,430		14,464,730
1963	9,016,400	3,998,065		13,014,465
1964	10,791,980	4,381,315		15,173,295
1965	11,312,900	4,381,315		15,694,215
1966	9,542,325	3,115,350	1,300,000	13,957,675
1967	10,219,517	3,282,250	5,500,000	19,001,767
1968	11,956,165	2,509,440	7,100,000	21,565,605
1969	14,246,964	2,120,829	7,000,000	23,367,793
1970	16,339,867	2,334,700	6,400,000	25,074,567
1971	15,666,207	2,797,200	8,000,000	26,463,407
1972	17,907,113	3,411,600	8,700,000	30,018,713
1973	10,201,430	2,636,400	8,500,000	21,337,830
1974	9,886,524	1,644,000	7,950,000	19,480,524
1975	8,593,424	2,161,200	10,700,000	21,454,624
1976	7,647,726	2,204,400	8,200,000	18,052,126
1977	7,634,143	1,309,200	7,405,150	16,348,493
1978	9,405,081	1,219,200	8,086,049	18,710,330
1979	13,026,690	1,914,000	9,287,870	24,228,560
1980	14,948,610	1,274,400	9,335,244	25,558,254
1981	13,449,912	1,772,400	9,522,782	24,745,094
1982	12,032,896	1,357,500	9,182,277	22,572,673
1983	14,184,100	720,000	8,922,250	23,826,350
1984	12,120,000	695,000	7,516,000	20,331,000
1985	14,526,000	657,500	7,789,000	22,972,500
1986	13,367,345	1,012,500	8,114,765	22,494,610
1987	14,683,118	710,000	7,976,315	23,369,433
1988	15,584,166	1,322,500	8,789,435	25,696,101
1989	12,978,206	487,500	8,087,074	21,552,780
1990	13,138,047		7,412,955	20,551,002
1991	14,096,305		5,806,650	19,902,955

Year	Over-the-Counter Sales	Agreement Forests	WIA Program	Total
1992	23,968,350		5,277,400	29,245,750
1993	14,822,400		3,591,525	18,413,925
1994	10,351,495		584,375	10,935,870
1995	9,342,763		803,505	10,146,268
1996	8,098,707		196,000	8,294,707
1997	3,700,000			3,700,000
1998	2,900,000			2,900,000
1999[2]	3,800,000			3,800,000
Total	**802,176,916**	**147,484,333**	**213,036,621**	**1,162,697,870**

[1] Data represents trees supplied from Provincial nurseries and does not include trees obtained from private nurseries.

[2] Data for 1999 represents number of trees in inventory at the St. Williams nursery when the nursery was transferred to the private sector.

APPENDIX B – Ontario Provincial Tree Nurseries

Nursery	Year Established[1]	Year Closed or Transferred to Private Sector[2]
Ontario Agricultural College	1905	1909
St. Williams	1908	1998
Orono	1922	1996
Midhurst	1922	1993
Kemptville – transplant Kemptville - nursery	1923 1946	 1996
Fort William (Thunder Bay)	1946	1993
Gogama	1956	1993
Chapleau	1956	1993
Sault Ste. Marie (Thessalon)	1956	1996
White River	1956	No records. Estimate before 1982
Dryden	1958	1999
Swastika	1958	1999

Sources: [1]MNR Annual Reports; MNR *Statistics* 1969
[2]MNR Silviculture Branch. Contact Mr. Thom McDonough (705) 945-6634

SEEDLING PRICES - ONTARIO PROVINCIAL TREE NURSERIES[3]

The *Forestry Act 1960* and amendments authorized provincial nurseries to furnish nursery stock to landowners and public organizations at the following prices:

Amendment to the *Forestry Act 1960*	Administration Fee	Price per Seedling
O. Reg. 140/80 s.5 (1980)	$10	$0.025
O. Reg. 466/86 s.1 (1986)	$10	$0.05
O. Reg. 590/88 s.1 (1988)	$10	$0.075
O. Reg. 142/91 (1991)	$10	$0.10
O. Reg. 232/97 (1997)	$10	$0.28

[3]For further information; contact Mr. Thom McDonough, MNR Silviculture Branch. (705) 945-6634

APPENDIX C – Sample Landowner Agreements

Sample Woodlands Improvement Agreement (W.I.A.)

W.I.A. No.

AGREEMENT made in duplicate this day of 20 ,

under The Woodlands Improvement Act.

BETWEEN: THE MINISTER OF NATURAL RESOURCES for the Province of Ontario, herein referred to as "Minister",

- and –

Address: Phone No.

herein referred to as "Owner".

THIS AGREEMENT WITNESSES that in consideration of the mutual provisions contained herein the parties hereto agree as follows:

* 1. This agreement shall be in effect for the period of years, commencing with the day of , 20 .

2. The Owner hereby gives leave and licence unto the Minister, his servants, agents and contractors to enter onto the land, herein forest, described in Schedule "A", for the purpose of planting nursery stock or improving woodlands in accordance with the management program, herein management program, described in Schedule "B".

3. Provided that moneys are appropriated therefor by the Legislature, the Minister agrees to plant nursery stock or improve woodlands on the forest in accordance with the management program.

4. The Owner agrees to provide the nursery stock to be planted in accordance with the management program and it is understood that such nursery stock may be purchased from the Minister at the prices prescribed from time to time by the regulations under the Forestry Act.

5. (1) During the term of this agreement, the Owner agrees to protect the forest against livestock, fire, insects, disease and other perils in accordance with the management program.

(2) The Owner agrees not to cut or remove any tree growing on the forest except as specified in the management program or for use by the Owner.

(3) This agreement shall not prevent the Owner from carrying out on the forest any operations that are consistent with this agreement.

6. (1) The Owner agrees to give written notice to the Minister of any proposed disposition of the forest or any part thereof.

(2) In the event of a disposition referred to in subparagraph 1, the Owner agrees that the Owner will not be relieved of the obligations of the Owner under this agreement until,

(a) the disposition has been completed, and

(b) the person, firm or corporation that has acquired the interest of the Owner in the forest or part thereof has entered into an agreement with the Minister assuming the obligations of the Owner under this agreement in respect thereto.

7. In the event that,

(a) the Owner does not comply with the provisions of this agreement, or

(b) the person, firm or corporation that has acquired the interest of the Owner in the forest or part thereof does not enter into the agreement referred to in paragraph 6(2) (b),

the Owner agrees that the Minister may on written notice to the Owner terminate this agreement and thereupon the Owner agrees to pay to the Minister the estimated management costs that are specified in the management program for the work that was performed under that program.

- 3 -

8. (1) Any notice required to be given by the Minister or Owner under this agreement may be personally delivered or mailed by pre-paid registered post to the last known address of the party to whom such notice is required to be given.

(2) Any notice mailed in accordance with subparagraph 1 shall be deemed to have been received on the fifth day next following and excluding the day it is deposited with any post office.

* 9. The Minister for the purposes of this agreement may act through the District Manager of the Administrative District, Ministry of Natural Resources, who can be contacted at the following address and telephone number:

*

10. It is hereby agreed that in construing this agreement the word "Owner" shall be read and construed as "Owner or Owners" as the number of the person or persons referred to in each case requires, and the number of the verb agreeing therewith shall be construed as agreeing with the said word so substituted.

IN WITNESS WHEREOF the parties hereto have executed this agreement.

SIGNED, SEALED and DELIVERED in the presence of)

_____)

Witness) District Manager as authorized by the Minister of Natural Resources

_____) _____

Witness) Owner

_____) _____

Witness) Owner

Sample Conservation Authority Agreement (courtesy GRCA)

Schedule "C"

Management Program

GRAND RIVER CONSERVATION AUTHORITY – REFORESTATION PLAN

Trees and forests cleanse our air and water, reduce soil erosion and flooding, and provide habitat, beauty, recreation and wood products. Seedlings and saplings of dozens of native species, grown from locally collected seed, are available under this program for eligible conservation plantings. Land parcels must be at least 1 hectare in size, and all plantings must be at least 30 meters from structures. Survival of the trees is not guaranteed, but Grand River Conservation Authority will ensure that its activities in handling, storage, and/or planting are properly done. Maintenance is the landowner's responsibility. Agreements must be accompanied by a planting plan drawn or approved by Grand River Conservation Authority.

LANDOWNER INFORMATION:

Name:

Address:

Postal Code:

Telephone:

Fax:

E-mail:

911 Number:

PROJECT LOCATION:

County:

Township:

Concession:

Lot:

Total Hectares Owned:

PLANTING INFORMATION:

Species	Quantity	Saplings 4-6'	Seedlings	Code	Herbicide	Prog. By	Tech.

Agreement: I the undersigned landowner, in recognition that Grand River Conservation Authority has "cost-shared" in this tree planting project, agree to the following for a 15 year period starting when the trees are planted.

1. To take reasonable measures to protect the planting from fire, livestock, insects, disease, machinery and other harmful things.
2. To allow Grand River Conservation Authority staff and their agents onto my property to inspect the plantings.

(In most cases, trees planted under this program are protected under the local county or region's tree cutting by-law, meaning that destroying a portion or all of the planting may be against the law.)

Landowner's Signature: _____ Date: _____

Authority Signing Officer: _____ Date: _____

Pursuant to section 29 (2) of the Municipal Freedom of Information and Protection of Individual Privacy Act, 1989, the personal information contained on this form is collected under the legal authorization of the Conservation Authorities Act, R.S.O. 1990, c27, and is used for the purposes of invoicing, record keeping, and follow-up communication. Where applicable, this information will be disclosed to the contractor responsible for implementing the project. Questions about this collection of personal information should be directed to the Forestry Supervisor, Central Services Section, Grand River Conservation Authority, 400 Clyde Road, Box 729, Cambridge, Ontario N1R 5W6 (519) 621-2761 ext. 255.

SITE PREPARATION DESCRIPTION – LANDOWNER'S RESPONSIBILITY:

Landowner to have staked the location of each sapling by April 1, 2001.

PLANTING DESCRIPTION:

Area:	Quantity:	Description:
A		
B		
C		

SITE DESCRIPTION:

Topography:

Soil:

Drainage:

Ground Cover:

LOCATION/ACCESS:

NOTE: this agreement form is designed for projects where the landowner pays almost all of the costs associated with the tree planting project.

APPENDIX D – Survey of Tree Planting

Program Proponent: _____
Contact Person: _____ **Phone:** _____

Please complete all questions for each program.

Table 1. Tree Planting Program
Program: _____Period of the program: _____

YEAR	TREES PLANTED	YEAR	TREES PLANTED	YEAR	TREES PLANTED	YEAR	TREES PLANTED

1. Program Objectives:

2. Is there a minimum area requirement? Yes Minimum area _____(specify acres or hectares) No
3. Are there other criteria that the landowner must satisfy in order to participate in the program?

4. Were agreements signed? Yes No
5. Who paid for the nursery stock? Landowner Program Proponent Cost shared
6. Who paid for the planting? Landowner Program Proponent Cost shared
7. Who did the work? Landowner Program Proponent Third party, e.g. contractor
8. Were the trees that were planted under this program obtained from (check all applicable):
Provincial nurseries Nursery operated by the Program Proponent
Approximate number of trees: _____
9. Privately operated nurseries Approximate number of trees: _____
10. Program Strengths:

11. Program Weaknesses:

12. If the program is no longer in effect, what caused the program to cease operations?